

# **Section B**

## **Spent Nuclear Fuel Stabilization and Disposition (RL-0012)**



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**Contract DE-AC06-08RL14788**  
**Deliverable C.3.1.3.1 - 1**

## PROJECT SUMMARY

RL personnel completed review of the 105-K West Basin Safety Basis documents that were submitted in support of the KOP processing operations and a Safety Evaluation Report (SER) has been placed in the RL approval process. Once RL Management approves the SER, CHPRC personnel will complete the implementation. The SER is scheduled to be received by CHPRC on 02/21/12. RL also completed review of the Cold Vacuum Drying Facility (CVDF) and Canister Storage Building (CSB) Safety Basis documents and is scheduled to issue SERs for those facility Safety Basis submittals around mid-March.

A recent independent review of the KOP Proof of Dryness Basis Calculation resulted in questions regarding the mathematical equation used to validate that MCOs loaded with KOP product material are physically dry (containing < 200 grams of free water). A revision of the Proof of Dryness Document (PRC-STP-00210) was formally approved in early February. Release of this document clears the way for RL to approve the CVDF & CSB Safety Basis documentation discussed above.

Construction forces continued installation of the KOP Processing System (KPS) hardware in the 105 KW Basin. This included the main separations table structure as well as preparation for the Screened Separations Unit to be placed on top of the structure later in calendar February. The current plan is to have the installation and subsequent Construction Acceptance Testing (CAT) completed by mid-March.

Final design of the Engineered Container Retrieval and Transport System (ECRTS) continued this month as planned.

A CHPRC Project Review Board (PRB) was held to review the planned modification of the KW Fire Loop. The PRB agreed with the ECRTS Project Self-Assessment that preparations were appropriate for the design phase of the modification. PRB comments were discussed and a clear approach to comment resolution was established.

Project management briefed RL on the potential to accelerate ECRTS CD 2/3 related activities. No change to the CD 2/3 critical path schedule was needed. However, it was agreed that early procurement of ECRTS process equipment would be the subject of a separate request for early procurement authorization and that procurement would not be scheduled to start until one month after the DOE had received the PDSA for review.

The formal review of the Modified K-West Annex Design package began this month, with comment resolution continuing through the end of the month. Safety Evaluation Board review of Modified K-West Annex constructor technical proposals began toward the end of the month.

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Preparations for the second STP ECRTS Technology Readiness Assessment continue as planned. The checklists for most of the Critical Technology Elements have been approved by the Joint Testing Group. Transmittal of all seven CTE data packages and objective evidence to DOE is expected by March 1.

Cold Vacuum Drying Facility Operations continued to perform simulator training and Systems/Bay qualifications in order to support Processing Scrap Fuel MCOs in FY-2012. A second training run utilizing an empty MCO was successfully performed in Bay 5, including off normal recovery plans that were implemented due to weather related Hanford Site closures.

A revision to the Sludge Databook (HNF-SD-SNF-TI-015, Rev 17) was issued incorporating physical and radiochemical properties based on characterization results for Engineered Container SCS-CON-210 sludge.

Analytical measurements collected during the long-term monitoring of sludge samples through December

2011 have been summarized along with information on sludge aging mechanisms (e.g. chemistry, rheology, and agglomerate formation) and are documented in the STP ECRTS Status Report for Long Term Monitoring of K Basin Sludge Samples (PRC-STP-00579, Rev 0).

## TARGET ZERO PERFORMANCE

	CM Quantity	Rolling 12 Month	Comment
Days Away, Restricted or Transferred	0	0	N/A
Total Recordable Injuries	0	0	N/A
First Aid Cases	4	23	<p><b>2/8</b> A Pipefitter from D4 100K was moving Garlock base plates that were stuck together. When the worker applied extra pressure to separate them, the worker experienced pain in the lumbar spine. <b>(22656)</b></p> <p><b>2/21</b> A Teamster from 100K was located in 200W at a Tool Crib Conex box. The Teamster was loading bags of grout onto a truck for delivery to 100K. The Teamster experienced pain in the right hand when lifting a bag. <b>(22670)</b></p> <p><b>2/22</b> An Auto Mechanic was working at 100K and was performing an annual DOT inspection on a MCO trailer when wind blew debris into the left eye. <b>(22677)</b></p> <p><b>2/29</b> An Electrician from 100K reported loosening and tightening bolts when the worker experienced a twinge in the right hand. <b>(22681)</b></p>
Near-Misses	0	0	N/A

## KEY ACCOMPLISHMENTS

Following clearing of the KOP Processing System (KPS) footprint, construction forces began installation of the KPS hardware in the 105 KW Basin in early February.

The first review draft of the Phase 2 Preliminary Technology Maturation Plan was issued for informal review by DOE-RL and the CHPRC STP project team. This plan forms the basis for meeting the TPA milestone M-016-171 (Complete K-Basin Sludge Technology Evaluation Report and Bench Testing Plan), due 03/31/12.

## MAJOR ISSUES

No major issues to report this month.

## RISK MANAGEMENT STATUS

**Unassigned Risk**  
**Risk Passed**  
**New Risk**  
**Change**

● Working - No Concerns  
● Working - Concern  
● Working - Critical

↑ Increased Confidence  
↔ No Change  
↓ Decreased Confidence

Risk Title	Risk Strategy/Handling	Assessment		Comments
		Month	Trend	
RL-012/WBS 012				
STP-039: KOP Separations Process Qualification	Test the mechanical separations process in a relevant environment at MASF	<div></div>	<div></div>	Risk Closed – Testing complete at MASF and equipment staged for readiness at 100K.
STP-042: KOP Material Drying in MCO	KOP MCOs will meet the proof of dryness after two drying cycles documented in PRC-STP-00187 and PRC-STP-00210.	<div></div>	<div></div>	KOP Thermal analysis and Proof of Dryness analysis have been updated to document capability of drying MCOs with KOP material. Declared PISA on proof of dryness calculation not considering helium purge effects for found fuel MCO.
STP-044: Increased Difficulty in Developing KOP Safety Basis	Technical issues or other nuclear safety issues could complicate the development of the authorization basis documents	<div></div>	<div></div>	SER not issued by DOE-RL. Working with RL on SER issue, Decreased Confidence.
STP-048: KOP Transportation Requirements	Develop F-SPA checklist as modeling results are available and brief RL Transportation Safety on approach/results.	<div></div>	<div></div>	F-SPA issued, working implementation plan and IVR.
STP-057: PWC & IWTS IXM Change Out	Physical properties of the KOP material are not expected to result in change out of the PWC & IWTS ion exchange media. 8 Additional IXM on hand to change out as required.	<div></div>	<div></div>	No issues at this time. The physical properties of the material will not be the driver to cause a required change out. Due to normal operation of the IWTS a change out may be required sometime during the KOP material processing, this activity would result in an up to one week delay in the current schedule.
STP-075A: ECRTS Technology Maturation Testing	Continue technology testing at MASF to demonstrate TRL-6 maturity by March 2012 TRA.	<div></div>	<div></div>	Complete.
STP-030: 100K KOP Systems Operation (CHPRC Risk)	Perform aggressive CM &PM Program for the IWTS, RRS, CLS, and other system to support MCO Loading.	<div></div>	<div></div>	No issues at this time. MLS/CLS Gantry and the 32 Ton KW crane PMs due in June & August.  (New Risk to chart for February Reporting)
STP-054: KOP Startup	Initiate startup/readiness activities to minimize impacts.	<div></div>	<div></div>	KOP Startup activities may be impacted by Found Fuel processing due to PISA and Fuel readiness assessment.  (New Risk to chart for February Reporting)
STP-056: KOP Material Washing/Basket Loading (CHPRC Risk)	Perform training and of the washing and MCO basket loading process at MASF.	<div></div>	<div></div>	Training at MASF is complete and equipment is being installed in K-West. Training to be conducted once equipment installed. No additional MASF mitigation is possible.  (New Risk to chart for February Reporting)
STP-ANX-002: Ecological/Cultural Conditions Restrict Field Activities	Accelerate cultural resource review to minimize schedule impact of cultural resource mitigation is required prior to initiating Annex Construction.	<div></div>	<div></div>	Cultural resource review initiated. No issues.  (New Risk to chart for February Reporting)
STP-007 Competing Priorities	Develop detailed working schedules and institute interface meetings to communicate priorities and progress. Overtime used to mitigate impacts of schedule delay.	<div></div>	<div></div>	Found Fuel MCO processing may be delayed by unknown impacts to resolve PISA. This will impact KOP startup and processing activities.  (New Risk to chart for February Reporting)

## PROJECT BASELINE PERFORMANCE

### Current Month

(\$M)

RL-0012 Spent Nuclear Fuel Stabilization and Disposition	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)
<b>Base</b>	6.6	6.4	6.5	(0.2)	-3.6	(0.1)	-2.2

Numbers are rounded to the nearest \$0.1M

#### CM Schedule Performance (-\$0.2M/-3.6%)

The combined 100K and STP variance is within reporting thresholds.

#### CM Cost Performance (-\$0.1M/-2.2%)

The combined 100K and STP variance is within reporting thresholds.

## Contract-to-Date

(\$M)

RL-0012 Spent Nuclear Fuel Stabilization and Disposition	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)
<b>Base</b>	281.0	281.2	281.2	0.2	0.1	(1.0)	-0.4	625.6	625.7	-1.2

Numbers are rounded to the nearest \$0.1M

#### CTD Schedule Performance (+\$0.2M/+0.1%)

The combined 100K and STP variance is within reporting thresholds.

#### CTD Cost Performance (-\$1.0M/-0.4%)

The combined 100K and STP variance is within reporting thresholds.

#### Contract Performance Report Formats are provided in Appendix A.

#### Estimate at Completion (EAC)

The current EAC change from December to January is within reporting thresholds.



## FUNDS VS. SPEND FORECAST (\$M)

RL-0012 Spent Nuclear Fuel Stabilization and Disposition	FY2012		Spend Variance
	Projected Funding	Spending Forecast	
<b>Base</b>	87.5	85.7	1.8

Numbers are rounded to the nearest \$0.1M.

### Funds/Variance Analysis

The spend variance reflects targeted carryover into FY2013.

### Critical Path Schedule

Critical Path Analysis can be provided upon request.

### Baseline Change Requests

None currently identified.

## MILESTONE STATUS

Tri-Party Agreement (TPA) milestones represent significant events in project execution. DOE Enforceable Agreement milestones were established to provide high-level visibility to critical deliverables and specific status on the accomplishment of these key events. The PMB Revision 3, implemented in November 2011, and subsequent approved BCRs define CHPRC planning with respect to TPA milestones.

Number	Title	Type	Due Date	Actual Date	Forecast Date	Status/ Comment
DNFSB 120W	Complete Sludge Treatment	DNFSB	11/30/09			A pending Implementation Plan update will address this milestone.
M-016-171	Complete K Basin Sludge Treatment & Packaging Tech Eval Report	TPA	3/31/12			On Schedule.

## SELF-PERFORMED WORK

The Section H.20 clause entitled, Self-Performed Work, is addressed in the Monthly Report Overview.

## GOVERNMENT FURNISHED SERVICES AND INFORMATION (GFS/I)

None currently identified.

